do some of the general text-books. Neither is this part specific enough in its directions to serve the student as a laboratory guide. It would have been better to have referred the beginner to the standard text-books for the general discussion, or to have provided him with specific directions for undertaking laboratory work leading up to the applications of veterinary bacteriology. This would have allowed the author more space for the extension and elaboration of the more valuable and specific part of the book in a way which he is well qualified to undertake.

It is hardly necessary to specify the shortcomings of the general part more than to point out that the historical sketch contains no reference to the other and earlier workers than Leeuwenhoek; the chapter dealing with classification is inadequate and confusing, and includes practically none of the recent work; in describing the preparation of culture media the methods are old-fashioned and but scant notice is given to the present-day standard methods; under the description of cultures the standard card of the Society of American Bacteriologists is not mentioned, although it is included in the chapter on classification, where it does not belong.

The chapter dealing with the bacteriology of water and milk is entirely unsatisfactory. The Standard Methods of Water Analysis now in use in practically all laboratories in this country are neglected altogether, although they are mentioned as giving methods for the preparation of culture media. The methods of interpreting the results of an analysis are not at all clear nor do they accurately represent present-day practise.

The discussion of the relation of bacteria to milk, a subject which touches closely veterinary matters, is also given but brief consideration. Too great stress is laid on such matters as the bactericidal property of milk, a subject about which there is much question, and the topic of bacteria in milk, particularly the pathogenic bacteria, is treated altogether too briefly. The author might very well have expanded this discussion to considerable length in a book of this character.

The good points of the book, and they are many, are mainly to be found in the part dealing particularly with veterinary matters. Here we have a careful summary of our knowledge of veterinary microbiology. But even here clearness and accuracy seem many times to have been sacrificed to brevity, although on the whole this part of the book is deserving of much praise. In the treatment of many topics we might mention important points which have been omitted, as for instance, Winslow's classification of the *Streptococci,* the occurrence of *M. gonorrhœa* in animals, the recent separation of *Bacillus coli* into its varieties, the modern methods of staining *Treponema.* But while sins of omission are frequent, those of commission are relatively rare and unimportant. The illustrations are not abundant but are well chosen, though their quality is not up to the standard set by the rest of the typography.

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Biology: An Introductory Study. By H. W. CONN. Boston, Silver, Burdett & Co. 1912. Price $1.50.

THE opinion of the reviewer was once solicited by a representative of one of the large publishing houses of this country as to who could write a good elementary biology and the answer was given that Professor Conn could do this. I do not believe that the publication of his present book had any reference to my statement, but it has warranted this statement. The book presents the subject in the most satisfactory manner of any of the texts which have appeared. In the first place it is a dignified college biology, demanding the serious attention of the student. The treatment is logical, beginning with the simple and working towards the complex and decidedly at variance with the views of those who believe it pedagogical heresy to put a compound microscope in the hands of the beginner. The illustrations are inelaborate, but quite ample and very well selected. At the ends of the chapters are references to books and papers, mainly of historical interest and a group of

suggestions is likewise given for laboratory work, but in no sense detailed laboratory directions; they concern hints for handling material which is not everywhere used for study. One of the most important things about the book is the etymological explanations of the meaning of technical terms, to be found throughout the text, while at the back is a well-selected glossary-index in one. There are some minor errors here and there, as the spelling of Robert Hooke's name as Robert Hooker, amyolitic for amylolytic, but these are few. The reviewer parts company with the author in regard to the prominence of amitosis in the light of the work of recent research in hydroid, cestode, pathologic and other departments; I do not believe that it is sufficiently emphasized that nutrition is the same in photosynthetic forms as in holozoic organisms, but that the difference is in the *obtaining* of nourishment, the one from inorganic substances, the other from foods ready formed. In the chapter "The Relations of the Chromatin to Heredity," the author thinks that it is "almost incredible that there can be in such a small compass the traits of characters which an individual transmits to its offspring." I think likewise and I do not believe that such is the case, but that the chromatin is a *determiner* of these traits, in the sense of Johanssen; unless this matter is presented to the beginning student in clear epigenetic terms, the whole matter will automatically reduce itself to a *reductio ad absurdum* in his mind.

The book is a strong argument for the biological Monroe Doctrine—biology for the biology classes. The discovery that animals and plants are built upon the same general plan and are in reality different aspects of the same thing is nearing a century in age, yet we teach the subject as if plants and animals were entirely disparate, and that there are no phenomena in common. The introductory course in physics and in chemistry aims to be general and to treat the science as a whole. It is as logical for the chemist to introduce his beginning students to organic chemistry, as for the biologist to make his elementary course mere botany or zoology. It is as futile to argue that no man can teach biology because he can not be a good botanist and a good zoologist at the same time as to assert that the teacher of physical chemistry can not be successful because he can not be both physicist and chemist: the point is that he is neither, he is a physical chemist, as the biologist should be a biologist. Professor Conn has given ammunition to the advocates of courses in general biology for beginning students.

M. M.

Handbook of Mental Examination Methods. By Shepherd Ivory Franz, Ph.D. New York, 1912. Nervous and Mental Disease Monograph Series No. 10.

Dr. Franz's volume adds another to the several recent handbooks of psychological methods and, as from a psychiatric angle, an addition quite worth making. It is an account of the simpler experimental methods to be used in the study of mental affections. The ground covered is the usual field of psychological experimentation, with a few special chapters, as one on Speech and Aphasia. The experimental methods described are taken somewhat from the literature, but are also largely the author's own, and in some of these latter instances it appears as though the field should have been more thoroughly gone over with reference to the work of others along similar lines. As to the single experiments described, the critic will appreciate that some experience with them is necessary to estimate their value for clinical purposes. Under Sensation are described the simple procedures with which most of us are familiar, though the methods of pain-measurement seem to be regarded as more objective than is the case. The reflexes and automatic acts are nearly passed over in the chapter on movement, though Franz has himself contributed to our knowledge of their pathology. Only the simpler methods are described for the observation of motor speed, accuracy, etc. The chapter on aphasia does not deal with experimental methods, but aims at sound guidance to clin-